

PARTS LIST

FOR

ONAN ELECTRIC GENERATING PLANTS

Series

HR

- AC

PARTS AVAILABILITY
NO LONGER GUARANTEED

D. W. ONAN & SONS INC. • MINNEAPOLIS 14, MINN

923-3A

C Printed in U.S.A.

MODEL IDENTIFICATION

To avoid errors or delay in filling your parts order, always give the MODEL, SPEC NO. and SERIAL NO. from the Onan nameplate.

For handy reference, insert your nameplate information in the spaces below.

MODEL AND SPEC NO.

SERIAL NO.

DIGITAL CONTROL SOFTWARE VERSION
AND DATE (IF APPLICABLE)

SAFETY PRECAUTIONS

The following symbols are used in Onan manuals to alert users to the potentially dangerous conditions relating to maintenance of equipment and replacement of parts. Please read and observe.

DANGER

This symbol warns of immediate hazards which will result in severe personal injury or death.

WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

CAUTION

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or product or property damage.

PRODUCT SAFETY PRECAUTIONS

WARNING

Service and repair of Onan equipment must be performed by trained, experienced personnel only. Improper service or repair may result in property damage, severe personal injury or death. Do not use this catalog as a guide to servicing your equipment. Read and follow the IMPORTANT SAFETY INSTRUCTIONS in the Service Manual appropriate for the equipment you are working on.

WARNING

Contact with USED ENGINE OILS has been identified by a United States federal agency and some USA state agencies as causing CANCER or REPRODUCTIVE TOXICITY. When checking or changing engine oils take all necessary precautions not to ingest, breathe the fumes or contact the used oil.

WARNING

Contact with ASBESTOS has been identified by a United States federal agency and some USA state agencies as causing CANCER or REPRODUCTIVE TOXICITY. When handling engine gaskets take all necessary precautions not to ingest, breathe or contact the dust from the gaskets! Use adequate ventilation and wear protective gloves, masks and clothing!

WARNING

Contact with BENZINE and LEAD, found in gasoline, fuel additives and solvents has been identified by a United States federal agency and some USA state agencies as causing CANCER or REPRODUCTIVE TOXICITY. When checking, draining or adding gasoline and fuel additives or using solvents take all necessary precautions not to ingest, breathe the fumes or contact the liquids. Use adequate ventilation and wear protective gloves, masks and protective clothing!

Important Safety Precautions

Read and observe these safety precautions when using or working on electric generators, engines and related equipment. Also read and follow the literature provided with the equipment.

Proper operation and maintenance are critical to performance and safety. Electricity, fuel, exhaust, moving parts and batteries present hazards that can cause severe personal injury or death.

FUEL, ENGINE OIL, AND FUMES ARE FLAMMABLE AND TOXIC

Fire, explosion, and personal injury can result from improper practices.

- Used engine oil, and benzene and lead, found in some gasoline, have been identified by government agencies as causing cancer or reproductive toxicity. When checking, draining or adding fuel or oil, do not ingest, breathe the fumes, or contact gasoline or used oil.
- Do not fill tanks with engine running. Do not smoke around the area. Wipe up oil or fuel spills. Do not leave rags in engine compartment or on equipment. Keep this and surrounding area clean.
- Inspect fuel system before each operation and periodically while running.
- Equip fuel supply with a positive fuel shutoff.
- Do not store or transport equipment with fuel in tank.
- Keep an ABC-rated fire extinguisher available near equipment and adjacent areas for use on all types of fires except alcohol.
- Unless provided with equipment or noted otherwise in installation manual, fuel lines must be copper or steel, secured, free of leaks and separated or shielded from electrical wiring.
- Use approved, non-conductive flexible fuel hose for fuel connections. Do not use copper tubing as a flexible connection. It will work-harden and break.

EXHAUST GAS IS DEADLY

- Engine exhaust contains carbon monoxide (CO), an odorless, invisible, poisonous gas. Learn the symptoms of CO poisoning.
- Never sleep in a vessel, vehicle, or room with a genset or engine running unless the area is equipped with an operating CO detector with an audible alarm.
- Each time the engine or genset is started, or at least every day, thoroughly inspect the exhaust system. Shut down the unit and repair leaks immediately.

- Warning: Engine exhaust is known to the State of California to cause cancer, birth defects and other reproductive harm.

Make sure exhaust is properly ventilated.

- Vessel bilge must have an operating power exhaust.
- Vehicle exhaust system must extend beyond vehicle perimeter and not near windows, doors or vents.
- Do not use engine or genset cooling air to heat an area.
- Do not operate engine/genset in enclosed area without ample fresh air ventilation.
- Expel exhaust away from enclosed, sheltered, or occupied areas.
- Make sure exhaust system components are securely fastened and not warped.

MOVING PARTS CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

- Do not remove any guards or covers with the equipment running.
- Keep hands, clothing, hair, and jewelry away from moving parts.
- Before performing any maintenance, disconnect battery (negative [–] cable first) to prevent accidental starting.
- Make sure fasteners and joints are secure. Tighten supports and clamps, keep guards in position over fans, drive belts, etc.
- If adjustments must be made while equipment is running, use extreme caution around hot manifolds and moving parts, etc. Wear safety glasses and protective clothing.

BATTERY GAS IS EXPLOSIVE

- Wear safety glasses and do not smoke while servicing batteries.
- Always disconnect battery negative (–) lead first and reconnect it last. Make sure you connect battery correctly. A direct short across battery terminals can cause an explosion. Do not smoke while servicing batteries. Hydrogen gas given off during charging is explosive.
- Do not disconnect or connect battery cables if fuel vapors are present. Ventilate the area thoroughly.

DO NOT OPERATE IN FLAMMABLE AND EXPLOSIVE ENVIRONMENTS

Flammable vapor can be ignited by equipment operation or cause a diesel engine to overspeed and become difficult to stop, resulting in possible fire, explosion, severe personal injury and death. **Do not operate diesel equipment where a flammable vapor environment can be created by fuel spill, leak, etc., unless equipped with an automatic safety device to block the air intake and stop the engine.**

HOT COOLANT CAN CAUSE SEVERE PERSONAL INJURY

- Hot coolant is under pressure. Do not loosen the coolant pressure cap while the engine is hot. Let the engine cool before opening the pressure cap.

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

- Do not service control panel or engine with unit running. High voltages are present. Work that must be done while unit is running should be done only by qualified service personnel.
- Do not connect the generator set to the public utility or to any other electrical power system. Electrocutation can occur at a remote site where line or equipment repairs are being made. An approved transfer switch must be used if more than one power source is connected.
- Disconnect starting battery (negative [-] cable first) before removing protective shields or touching electrical equipment. Use insulative mats placed on dry wood platforms. Do not wear jewelry, damp clothing or allow skin surface to be damp when handling electrical equipment.
- Use insulated tools. Do not tamper with interlocks.
- Follow all applicable state and local electrical codes. Have all electrical installations performed by a qualified licensed electrician. Tag open switches to avoid accidental closure.
- With transfer switches, keep cabinet closed and locked. Only authorized personnel should have cabinet or operational keys. Due to serious shock hazard from high voltages within cabinet, all service and adjustments must be performed by an electrician or authorized service representative.

If the cabinet must be opened for any reason:

1. Move genset operation switch or Stop/Auto/Handcrank switch (whichever applies) to Stop.
2. Disconnect genset batteries (negative [-] lead first).
3. Remove AC power to automatic transfer switch. If instructions require otherwise, use extreme caution due to shock hazard.

MEDIUM VOLTAGE GENERATOR SETS (601V TO 15kV)

- Medium voltage acts differently than low voltage. Special equipment and training are required to work on or around medium voltage equipment. Operation and maintenance must be done only by persons trained and qualified to work on such devices. Improper use or procedures will result in severe personal injury or death.
- Do not work on energized equipment. Unauthorized personnel must not be permitted near energized equipment. Induced voltage remains even after equipment is disconnected from the power source. Plan maintenance with authorized personnel so equipment can be de-energized and safely grounded.

GENERAL SAFETY PRECAUTIONS

- Do not work on equipment when mentally or physically fatigued or after consuming alcohol or drugs.
- Carefully follow all applicable local, state and federal codes.
- Never step on equipment (as when entering or leaving the engine compartment). It can stress and break unit components, possibly resulting in dangerous operating conditions from leaking fuel, leaking exhaust fumes, etc.
- Keep equipment and area clean. Oil, grease, dirt, or stowed gear can cause fire or damage equipment by restricting airflow.
- Equipment owners and operators are solely responsible for operating equipment safely. Contact your authorized Onan/Cummins dealer or distributor for more information.

KEEP THIS DOCUMENT NEAR EQUIPMENT FOR EASY REFERENCE.

HR SERIES PARTS LIST

This parts list applies to the HR Series generating plants as listed in the Plant Data Table. They are powered by a CONTINENTAL 6 cylinder, Water Cooled Engine.

When facing the "Front" or Radiator End the "Left Side" is the Carburetor side.

If a special or optional part is not listed, order by description of the part and furnish complete nameplate information. The nameplates are located in the following places:

Continental Engine Nameplate is located on the right hand side of the Cylinder Block.

ONAN Main Nameplate is located on the upper right hand side of the Flywheel Housing.

ONAN Exciter Nameplate is located on the right side of the Exciter.

Parts in this list apply to all the models listed in the Plant Data Table unless otherwise specified. Some parts have additional descriptive information for various models. The plant data table contains all descriptive information pertinent to this list such as voltages, cycles etc.

Parts are listed alphabetically in groups of related items. For finding a particular part refer first to the Table of Contents on Page 2.

Plant Data Table

MODEL	ELECTRICAL DATA		
	WATTS	VOLTS	CYCLES
75HR-4R8/	75,000	120/208	60
75HR-5DR8/	75,000	120/240	60
75HR-6R8/	75,000	460	60
75HR-7R8/	75,000	220/380	60
75HR-9R8/	75,000	575	60
75HR-4XR8/	75,000	277/480	60
60HR-54R8/	60,000	120/208	50
60HR-55DR8/	60,000	120/240	50
60HR-56R8/	60,000	460	50
60HR-57R8/	60,000	220/380	50
60HR-59R8/	60,000	575	50

TABLE OF CONTENTS

<u>SUBJECT</u>	<u>PAGE NO.</u>
Cylinder and Crankcase Group	3
Cylinder Head Group	5
Crankshaft, Camshaft and Flywheel Group	7
Piston and Connecting Rod Group	9
Gear Cover Group.....	10
Valve Group	11
Oil Pan Group	12
Mounting and Cranking Group	15
Manifold and Muffler Group	16
Fuel System Group	17
Governor Group	19
Water Pump and Fan Group	19
Radiator Group	20
Ignition Group	21
Battery Charge Generator and Starting Motor Group	22
Anti-Dieseling Group.....	23
Day Tank Group	24
Control Group	
AC Output (Upper Panel)	24
Engine (Lower Panel)	26
Generator Group	27

PARTS LIST

23

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
			CYLINDER AND CRANKCASE GROUP
100P174		1	Engine, Replacement (Continental Type R602 Specification 404) - General Description: Includes: Complete Cylinder and Crankcase, Carburetor, Fuel Pump, Air Cleaner, Oil Filter, Water Pump, Radiator, Radiator Housing and Brace, Fan Blades and Belt, Starter and Solenoid, Charge Generator and Regulator, Distributor, Ignition Coil, Spark Plugs and Leads, Electric Choke, Governor, Flywheel and Housing, Foot Type Mounting Base and Motor Support, Tie Rod, Starting Crank, Exhaust Outlet.
R600B-405		1	Block, Filler - Rear.
R600F-312		1	Breather, Crankcase - Oil Bath Type (Located on Right Side of Crankcase).
R600B-407		1	Cap, Bearing - Crankshaft Front.
R600B-401		4	Cap, Bearing - Crankshaft Intermediate (Front and Rear).
R600B-403		1	Cap, Bearing - Crankshaft Center.
R600B-406		1	Cap, Bearing - Crankshaft Rear.
X-1011		1	Cock, Cylinder Water Drain.
R600B-224		1	Cover, Extra Fuel Pump Opening.
R600A-6124A		1	Cylinder and Crankcase Assembly - Consists of: Cylinder and Crankcase, Caps, Bearings, Sleeves, Guides, Inserts, Support, Stud, Plugs and Pins.
R600A-6124C		1	Cylinder and Crankcase Assembly - Consists of: R600A-6124A plus Pistons and Rings.
R600A-6129S		1	Cylinder and Crankcase Assembly (Complete) Consists of: R600A-6124C plus Connecting Rods, Crankshaft, Camshaft, Front End Plate, Gears, Filler Blocks, Cylinder Head Assembly, Gaskets, Gear Cover Assembly, Oil Pump Assembly, Oil Pan Assembly, Studs, Nuts, Screws, Washers, Plugs and Lockwires.
F600B-219		14	Dowel, Crankshaft Bearing Cap to Cylinder - 5/16 x 7/8".
R600B-213		2	Dowel, Filler Block to Cylinder.
X-12150		1	Elbow, Pipe - 1/2" - Crankcase Breather to Crankcase.
R600V-203		1	Gasket, Cover - Extra Fuel Pump Opening.
R600B-205		2	Gasket, Filler Block to Cylinder.
H260B-209		2	Gasket, Rear Oil Seal Crankcase.
R572U-101		1	Gasket Set, Cylinder and Crankcase.
X-316		10	Gasket, Special Plug - Cylinder Core Hole.
P75-206		1	Nipple, Pipe - 1/2" - Crankcase Breather to Crankcase.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CYLINDER AND CRANKCASE GROUP (Cont.)			
X-1802G		2	Nut, Cover Stud - Extra Fuel Pump Opening.
R600B-223		2	Packing, Filler Block to Oil Pan.
X-1779		4	Pin, Crankshaft Bearing Oil Seal.
X-2231		1	Plug, Crankshaft Bushing Rear - Hubhard - 2-3/8".
X-2236		2	Plug, Expansion - Hubhard - 1-1/2" - Cylinder Core Holes (Front).
X-5328		1	Plug, Oil Dip Stick Boss.
X-101B		1	Plug, Pipe - Crankcase Breather Hole.
X-110		6	Plug, Pipe - 3/8" - Cylinder Oil Gallery.
X-116		1	Plug, Pipe - 1/4" - Cylinder Water Jacket Drain Hole.
6YL-118		5	Plug, Slotted Pipe - 3/8" - (3) Cylinder Oil Gallery, (2) Oil Cooler Oil Line.
6AA-104		10	Plug, Special - Cylinder Core Hole.
R600L-206		1	Plug, Special - Oil Cooler Oil Line (Main).
X-3516		13	Screw, Crankshaft Bearing Cap to Cylinder - 1/2-13 x 2-3/4".
X-3759		16	Screw, Crankshaft Bearing Cap to Cylinder - 1/2-13 x 3-1/4".
X-3553		2	Screw, Crankshaft Bearing Oil Seal - 1/4-20 x 3/8" - (5) to Cylinder, (1) to Filler Block.
X-3762		6	Screw, Filler Block to Cylinder - 5/16-18 x 3-7/8".
X-2956		2	Seal, Oil - Crankshaft Bearing - Rear.
R600B-200		2	Sender, Oil Pressure Gauge (Engine Unit).
193-38		1	Sender, Water Temperature Gauge (Engine Unit).
193-37		1	Shield, High Water Temperature Switch Heat.
309B66		1	Stud, Cover - Extra Fuel Pump Opening - 3/8-16 x 1-1/4".
X-19006B		2	Switch, Cut off (High Water Temperature).
309-9		1	Switch, Cut off (Low Oil Pressure).
308B16		1	Washer, Lock - Crankshaft Bearing Oil Seal Screw - 1/4".
X-1442		10	Washer, Lock - Extra Fuel Pump Opening Cover Stud - 3/8".
X-203		2	Washer, Lock - Filler Block to Cylinder Screw - 5/16".
X-202		2	Washer, Lock - Crankshaft Bearing Cap to Cylinder Screw - 1/2".
3X-B2B-110		29	Washer, Plain - Crankshaft Bearing Cap to Cylinder Screw - 9/16".
3X-X-14230		2	Wire, Lock - Crankshaft Bearing Cap to Cylinder Screw - .042 x 7.
X-1333D		11	Wire, Lock - Crankshaft Bearing Cap to Cylinder Screw - .042 x 7.
7VH-107		3	Wire, Lock - Crankshaft Bearing Cap to Cylinder Screw - .042 x 9.

PARTS LIST

5

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CYLINDER HEAD GROUP			
X-2356		2	Clamp, Hose - Cylinder Water Inlet Header to Water Pump.
R600K-203		2	Clamp, Hose - Oil Cooler Water Inlet Seal.
X-2355		2	Clamp, Hose - Cylinder Water Outlet Header - 2-1/16".
R600K-231		2	Clamp, Hose - Cylinder Water Outlet Connection to Water Pump Hose - 1-3/8".
R600A-324		1	Connection, Breather - Connects Cylinder Head Cover to Cylinder Head Cover.
R600K-367		1	Connection, Cylinder Water Outlet (Houses Thermostats).
R600A-5002		1	Cover, Cylinder Head - Front.
R600A-4031		1	Cover, Cylinder Head - Rear.
R600A-211		4	Dowel, Cylinder Head to Cylinder.
X-12247		1	Ell, Street - Connects Breather Nipple to Breather Valve.
X-5098		2	Elbow, Flared Tube (1) Breather Tube to Breather Valve, (1) Breather Tube to Exhaust Manifold Elbow.
X-5154		1	Elbow, Pipe - 1/4" - Exhaust Manifold to Breather Tube Elbow.
R600A-217		1	Eye, Engine Lifting - Front.
R600A-218		1	Eye, Engine Lifting - Rear.
R600L-215		2	Gasket, Breather Connection to Cylinder Head Covers.
R600A-402		2	Gasket, Cylinder Head Covers to Head.
X-211A		6	Gasket, Cylinder Head to Head Screw.
R600A-459		2	Gasket, Cylinder Head to Cylinder.
R600K-259		4	Gasket, Cylinder Water Inlet Header to Head.
R600K-329		1	Gasket, Cylinder Water Outlet Connection to Header.
R600K-206		4	Gasket, Cylinder Water Outlet Header to Cylinder.
R600A-5093A		1	Head Assembly, Cylinder - Front (Includes Head, Guides, Inserts, Tubes, Studs & Plugs).
R600A-5097		1	Head Assembly, Cylinder - Front (Includes Head Assembly R600A-5093A Plus Valves, Rings, Springs, Retainers, Roto Assembly, Locks and Gaskets).
R600A-6153A		1	Head Assembly, Cylinder - Rear (Includes Head, Guides, Inserts, Tubes, Studs & Plug).
R600A-6157		1	Head Assembly, Cylinder - Rear (Includes Head Assembly R600A-6153A Plus Valves, Rings, Springs, Retainers, Roto Assembly, Locks and Gaskets).
R600K-401		1	Header, Cylinder Water Inlet.
R600K-4061		1	Header Assembly, Cylinder Water Outlet - Rear (Includes Stud & Plug).
R600K-506		1	Header, Cylinder Water Outlet - Front.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CYLINDER HEAD GROUP (Cont.)			
H24K-230		1	Hose, Cylinder Water Inlet Header to Water Pump.
X-2439		1	Hose, Cylinder Water Outlet Header (Front to Rear).
C-2385		1	Hose, Cylinder Water Outlet Connection to Water Pump- 1" x 1-3/8" x 3-1/4".
X-5196		1	Nipple, Pipe - 1/4" - Connects Breather Elbow to Breather Connection.
X-1801E		6	Nut - 5/16-18 - (4) Breather Connection to Cylinder Head Cover Screws, (2) Cylinder Water Outlet Header Heat Shield Stud.
X-1802G		12	Nut - 3/8-16 - (8) Cylinder Water Outlet Header to Cylinder Stud, (4) Rear Lifting Eye to Head Stud.
X-18166		2	Nut - 1/2-13 - Front Lifting Eye to Head Stud.
E600A-215		2	Plug, Fuse - 1/8" Pipe - (1) Rear Cylinder Head, (1) Cylinder Block.
X-110		6	Plug, Pipe - 3/8" - Cylinder Head Vent Holes.
X-103		2	Plug, Pipe - 1/2" Extruded Head - Cylinder Water Outlet Header.
X-2270		4	Plug, Pipe - Rocker Arm Shaft Oil Line - (3) Front Cylinder Head, (1) Rear Cylinder Head.
X-3925		6	Screw, Cylinder Head Covers to Head - 3/8-16 x 1".
X-3471A		13	Screw, Cylinder Head to Cylinder - 1/2-13 x 7".
X-3638		8	Screw, Cylinder Head to Cylinder - 1/2-13 x 6".
X-3640		6	Screw, Cylinder Head to Cylinder - 1/2-13 x 1-3/4".
X-3479A		2	Screw, Cylinder Water Inlet Header to Head - 1/2-13 x 3-1/2".
X-3501		1	Screw, Cylinder Water Inlet Header to Head - 1/2-13 x 3-7/8".
X-3514A		1	Screw, Cylinder Water Inlet Header to Head - 1/2-13 x 3".
6AB-107		6	Screw, Cylinder Water Inlet Header Plugging - 3/8-16 x 5/8".
X-3322		4	Screw, Cylinder Water Outlet Connection to Header - 3/8-16 x 3-1/8".
X-3311		2	Screw, Cylinder Water Outlet Connection to Header - 3/8-16 x 3-1/2".
R600K-202		1	Seal, Oil Cooler Water Inlet.
R600K-341		1	Shield, Heat - Cylinder Water Outlet Header.
R600A-219		1	Spacer, Lifting Eye to Head - Front.
X-19982		4	Stud, Breather Connection to Cylinder Head Covers - 5/16-18 x 1-7/8".
X-4217		8	Stud, Cylinder Water Outlet Header to Cylinder - 3/8-16 x 1-5/8".
X-4133		2	Stud, Cylinder Water Outlet Header Heat Shield - 5/16-18 x 7/8".
X-3476A		2	Stud, Lifting Eye to Head - Front - 1/2-13 x 2-3/16".
X-19003		4	Stud, Lifting Eye to Head - Rear - 3/8-16 x 1-3/8".

PARTS LIST

7

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CYLINDER HEAD GROUP (Cont.)			
T427K-4050		2	Thermostat, Water Temperature.
S749F-201		1	Valve, Breather (Located Between Breather Tube and Breather Connection).
X-14134		6	Washer, Copper - Cylinder Water Inlet Header Plugging Screw.
X-202		6	Washer, Lock - 5/16" - (4) Breather Connection Mounting Studs (2) Cylinder Water Outlet Header Heat Shield Stud.
X-296		6	Washer, Lock - 1/2" - (4) Cylinder Water Inlet Header to Head Screw, (2) Front Lifting Eye to Head Stud.
X-203		18	Washer, Lock - 3/8" - (8) Cylinder Water Outlet Header to Cylinder Stud, (6) Cylinder Water Outlet Connection to Header Screw, (4) Rear Lifting Eye to Head Stud.
6AB-112		28	Washer, Plain - Cylinder Head to Cylinder Screw - 17/32".
CRANKSHAFT, CAMSHAFT AND FLYWHEEL GROUP			
R600G-3041		1	Bearing, Crankshaft - Center Main - Upper and Lower.
R600G-3001		1	Bearing, Crankshaft - Front Main - Upper and Lower.
R600G-3021		4	Bearing, Crankshaft - Intermediate Main (2) Front, (2) Rear - Upper and Lower.
R600G-3061		1	Bearing, Crankshaft - Rear Main - Upper and Lower.
R6572T-102		1	Bearing Kit, Main (Engine Set).
R600G-201		1	Bushing, Camshaft - Center.
R600G-200		1	Bushing, Camshaft - Front.
R600G-202		2	Bushing, Camshaft Intermediate - (1) Front, (1) Rear.
R600G-203		1	Bushing, Camshaft - Rear.
R6572T-153		1	Bushing Kit, Camshaft - Finish Reamed (Engine Set).
R6001-514		1	Camshaft.
8SB-303		1	Cover, Flywheel Housing Dust.
F400C-206		1	Cover, Flywheel Housing Timing Hole.
R600C-5000		1	Crankshaft.
R600C-4650		1	Damper Assembly, Vibration.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CRANKSHAFT, CAMSHAFT AND FLYWHEEL GROUP (Cont.)			
20RB-241		2	Dowel, Flywheel Housing to Cylinder Block.
R600C-219		6	Dowel, Flywheel to Crankshaft.
F400C-208		1	Felt, Timing Hole Cover.
R600C-4260		1	Flywheel Assembly - Includes Ring Gear.
R600H-407		1	Gear, Camshaft Timing.
R600H-300		1	Gear, Crankshaft Timing.
B5C-310		1	Gear, Ring - Flywheel.
S749B-308		1	Housing, Flywheel.
20R0-212		1	Jaw, Crankshaft Starting.
3X-X-544		1	Key, Camshaft Timing Gear to Camshaft.
3X-X-545		2	Key, Crankshaft Timing Gear to Crankshaft.
R600-O-200		1	Lock, Crankshaft Starting Jaw.
X-18263		1	Nut, Camshaft Timing Gear to Camshaft - 1-1/4 x 18.
X-18166		10	Nut, Flywheel Housing to Cylinder Block Stud.
X-14391		1	Nut, Lock - Camshaft Timing Gear to Camshaft Nut.
X-14243		2	Nut, Lock - Crankshaft Starting Jaw Lock Screw.
6TG-101		3	Pin, Crankshaft Thrust Washer to Crankcase.
R600I-237		1	Plate, Camshaft Thrust.
X-3312		2	Screw, Camshaft Thrust Plate to Crankcase - 3/8-16 x 7/8".
X-2949		1	Screw, Flywheel Pointer Drive - #10 x 1".
X-3569		6	Screw, Flywheel to Crankshaft - 5/8-18 x 1-3/8".
X-3940		4	Screw - 3/8-16 x 5/8" - (3) Dust Cover to Housing (1) Timing Hole Cover to Housing.
R600C-229		6	Screw, Vibration Damper to Fan Drive Pulley - 3/8-16 x 1-3/4".
R600C-207		As Req.	Shim, Crankshaft Thrust - .002".
R600C-206		As Req.	Shim, Crankshaft Thrust - .008".
X-19991		10	Stud, Flywheel Housing to Cylinder Block - 1/2-13 x 1-3/4".
R600C-203		1	Thrower, Crankshaft Oil.
R600C-208		1	Washer, Crankshaft Starting Jaw to Crankshaft.
R600C-201		2	Washer, Crankshaft Thrust.
X-273		6	Washer, Lock - Flywheel to Crankshaft - 5/8".



PARTS LIST

9

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CRANKSHAFT, CAMSHAFT AND FLYWHEEL GROUP (Cont.)			
X-203		4	Washer, Lock - 3/8" - (3) Dust Cover to Housing Screw, (1) Timing Hole Cover to Housing Screw.
X-204		6	Washer, Lock - Vibration Damper to Fan Drive Pulley Screw - 7/16".
X-1353		2	Washer, Plain - Starting Jaw Lock Screw - 15/32".
6AD-107		3	Wire, Lock - Flywheel to Crankshaft Bolts - 9" Long.
X-1333T		1	Wire, Lock - Vibration Damper to Fan Drive Pulley Screw - .042 x 14.
PISTON AND CONNECTING ROD GROUP			
R600G-308		12	Bearing, Connecting Rod (Halves).
R6572T-108		1	Bearing Kit, Connecting Rod (Engine Set).
R600D-200		12	Bolt, Connecting Rod.
R600G-204		6	Bushing, Piston Pin (Included in Rod Assembly).
B2D-104		12	Nut, Connecting Rod Bolt - 1/2-20.
X-602		12	Pin, Cotter - Connecting Rod Bolt - 3/32 x 1.
R600A-200		6	Pin, Piston.
R600A-4271E		6	Piston Assembly - Includes Piston, Pin and Pin Retaining Rings.
R600A-4271ESF		6	Piston Assembly (Semi-Finished) Includes Piston, Pin and Pin Retaining Rings.
R600A-4273A		6	Piston Assembly (Complete) Includes R600A-4271E plus Piston Rings.
R600A-427		6	Piston Only.
R600A-427SF		6	Piston Only (Semi-Finished).
R6602T-103C		1	Ring Kit, Piston (Re-Ring).
R6602T-140C		1	Ring Kit, Piston (Re-Bore).
R6602T-112		1	Ring Kit, Piston (2 in 1).
R602A-303		6	Ring, Piston - Chrome (Top Groove).
R602A-317		12	Ring, Piston - Taper Face (Second and Third Groove).
R602A-305		6	Ring, Piston Oil Control (Fourth Groove).
R602A-316		6	Ring, Piston - Corner Cut (Bottom Groove).

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
			PISTON AND CONNECTING ROD GROUP (Cont.)
	22RA-224	12	Ring, Piston Pin Retaining.
	R600D-5001	6	Rod Assembly, Connecting - Includes Bearing and Bushing.
			GEAR COVER GROUP
	R600B-558	1	Cover, Gear.
	F162S-204	1	Cover, Magneto Hole.
	R600B-201	2	Dowel, Ring - Gear Cover to Cylinder.
	R600B-308	1	Gasket, Crankcase End Plate to Cylinder.
	X-316	1	Gasket, Gear Cover Hole Plug.
	R600B-304	1	Gasket, Gear Cover to End Plate.
	F400S-200	1	Gasket, Governor Mounting.
	Y91S-215	1	Gasket, Governor Mounting Plate.
	X-318	1	Gasket, Governor Mounting Screw Copper - 3/8".
	X-18166	5	Nut, Gear Cover - 1/2-13 - (3) to Cylinder Stud, (2) to End Plate Screw.
	R600B-434.	1	Plate, Crankcase End - Front.
	F400S-201	1	Plug, Governor Mounting.
	6AA-104	1	Screw, Crankcase End Plate to Cylinder - 3/8-16 x 7/8".
	X-3914	1	Screw, Gear Cover to Cylinder - 1/2-13 x 1-3/4".
	6FK-131	3	Screw, Gear Cover to End Plate - 1/2-13 x 2-1/4".
	X-3459	4	Screw, Governor Plate Mounting - 3/8-16 x 3-1/4" - Upper.
	X-3484	1	Seal, Crankshaft Bearing Front Oil.
	X-3536	1	Stud, Gear Cover to Cylinder - 1/2-13 x 2-1/8".
	X-3336	1	Stud, Gear Cover to Cylinder (At Ring Dowel) 1/2-13 x 2-5/8".
	X-3258	1	
	R600L-204	1	
	X-4493	1	
	X-19988	1	

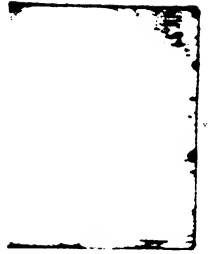
PARTS LIST

11

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
GEAR COVER GROUP (Cont.)			
	X-19906	1	Stud, Gear Cover to Cylinder (At Ring Dowel) 1/2-13 x 3".
	X-297	3	Washer, Lock - Crankcase End Plate to Cylinder Screw - 3/8".
	X-203	2	Washer, Lock - Crankcase End Plate to Gear Cover - 3/8".
	X-296	10	Washer, Lock - 1/2" - (5) Gear Cover to Cylinder Screw, (2) Gear Cover to End Plate Screw, (3) Gear Cover to Cylinder Stud.
VALVE GROUP			
	R600I-3000	12	Arm Assembly, Rocker.
	R600I-209	6	Cap, Valve Stem.
	R600A-301	1	Cover, Valve Tappet Chamber (Front).
	R600A-300	1	Cover, Valve Tappet Chamber (Center).
	R600I-301	6	Crab, Valve Tappet Guide.
	R600I-202	2	Dowel, Rocker Arm Shaft Support to Head.
	R6572T-181	1	Gasket Kit, Valve Grind.
	X-336	4	Gasket, Rocker Arm Shaft Oil Plug.
	X-1522	6	Gasket, Valve Stem Oil Guard.
	R600A-202	1	Gasket, Valve Tappet Chamber Cover to Cylinder (Front).
	R600A-201	1	Gasket, Valve Tappet Chamber Cover to Cylinder (Center).
	R600I-264	6	Guide, Valve Stem - Intake.
	R600I-276	6	Guide, Valve Stem - Exhaust.
	R600I-240	12	Guide, Valve Tappet.
	R600A-331L	6	Insert, Valve Seat - Exhaust (.010 Oversize).
	E604I-202	24	Lock, Valve Spring Retainer.
	X-18129	12	Nut, Lock - Rocker Arm Adjusting Screw - 3/8-24.
	D600I-202	4	Plug, Oil - Rocker Arm Shaft.
	R600I-262	12	Retainer, Valve Spring - Exhaust and Intake.
	R600I-228	12	Ring, Valve Stem Snap.
	R600I-2510	12	Rod Assembly, Push.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
VALVE GROUP (Cont.)			
R6001-3370		12	Roto Assembly, Exhaust and Intake.
22R1-200		12	Screw, Rocker Arm Adjusting.
X-3571		4	Screw, Rocker Arm Shaft Support Clamp - 3/8-16 x 3-5/8".
X-3570		2	Screw, Rocker Arm Shaft Support to Head - 3/8-16 x 3-1/8".
R6001-223		4	Screw, Rocker Arm Shaft Support to Head (Special Head) 3/8-16.
R6001-225		2	Screw, Rocker Arm Shaft Support to Head (Special Head) 3/8-16.
6FK-131		12	Screw, Valve Tappet Chamber Cover to Cylinder - 3/8-16 x 7/8".
X-3252		6	Screw, Valve Tappet Guide Crab to Cylinder - 3/8-16 x 1-3/8".
R6001-400		2	Shaft, Rocker Arm.
R6001-213		12	Socket, Valve Actuating Ball.
S7491-205		4	Spring, Rocker Arm Shaft - Long.
R6001-218		4	Spring, Rocker Arm Shaft - Short.
R6001-333		12	Spring, Valve - Inner.
R6001-334		12	Spring, Valve - Outer.
R6001-302		6	Support, Rocker Arm Shaft.
R6001-242		12	Tappet, Valve.
R600A-208		12	Tube, Push Rod.
R6001-336		6	Valve, Exhaust.
R6001-309		6	Valve, Intake.
X-203		24	Washer, Lock - 3/8" - (6) Crab to Cylinder Screw, (12) Support to Head Screw, (6) Chamber Cover to Cylinder Screw.
OIL PAN GROUP			
R600L-240		1	Adapter, Oil Gauge Tube.
R600L-509		1	Body, Oil Pump.
R602L-201		1	Brace, Oil Gauge Rod Tube.
S749L-200		2	Bushing, Reducer - Oil Filter Base.
R600L-3640		1	Cap Assembly, Oil Filler.



PARTS LIST

13

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
			OIL PAN GROUP (Cont.)
K600K-3001		1	Cooler Assembly, Oil - Includes Studs.
R600K-3701		1	Cooler Assembly, Oil - Includes Studs (Optional).
M600L-244		2	Cover, Oil Filter.
R600B-3000		1	Cover, Oil Pan Hand Hole.
R600L-403		1	Cover, Oil Pump.
R600L-422		2	Element, Oil Filter.
K404L-210		1	Felt, Oil Gauge Rod Cover.
F226L-2090		2	Filter Assembly, Oil.
R600L-325		1	Float - O - Assembly, Oil Pump.
X-386		1	Gasket, Oil Cooler By-Pass Valve Plug - 7/8".
R600L-383		1	Gasket, Oil Cooler Housing to Cooler.
R600L-307		1	Gasket, Oil Cooler to Cylinder.
R600L-262		2	Gasket, Oil Filter to Oil Cooler Housing.
W4B-108		1	Gasket, Oil Pan Drain Plug.
R600B-301		2	Gasket, Oil Pan Hand Hole - (1) Reinforcement Ring (1) to Oil Pan.
R600B-400		1	Gasket, Oil Pan to Crankcase.
R600L-213		1	Gasket, Oil Pump Cover to Body.
R600H-200		1	Gear, Oil Pump Driver.
R600H-201		1	Gear, Oil Pump Idler.
R600L-600		1	Housing, Oil Cooler.
X-504		2	Key, Oil Pump Driver Gear to Shaft.
R600L-360		1	Neck, Oil Filler.
X-1801E		1	Nut, Lock - Oil Pressure Relief Valve Adjusting Screw - 5/16-18.
X-1802G		15	Nut, Oil Cooler Housing - (2) to Cooler Stud, (13) to Cylinder (3/8-16).
2X-X-1802G		3	Nut, Oil Cooler to Cylinder Stud - 3/8-16.
X-1800C		8	Nut, Oil Pan Hand Hole Cover to Oil Pan Stud - 1/4-20.
R600B-5530		1	Pan Assembly, Oil.
X-619		1	Pin, Cotter - Oil Pump Float-O-to Cover - 1/8 x 1-1/4".
6TG-101		1	Pin, Oil Cooler By-Pass Sleeve.
X-17059		1	Pin, Oil Cooler By-Pass Sleeve to Cylinder Block.
S740L-202		1	Plug, Oil Cooler By-Pass Valve.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
OIL PAN GROUP (Cont.)			
X-116		2	Plug, Oil Cooler Housing Pipe - 1/4"
X-102		1	Plug, Oil Gauge Tube Adapter Pipe (3/8" Extruded Head).
22RB-221		1	Plug, Oil Pan Drain.
X-2235		1	Plug, Oil Pump Cover Hubbard - 3/4".
X-101B		1	Plug, Oil Pump Cover Countersunk Pipe - 1/2".
R600L-5092		1	Pump Assembly, Oil - Complete.
R6572T-126		1	Repair Kit, Oil Pump.
R600B-302		1	Ring, Oil and Hand Hole Reinforcement.
R602L-2020		1	Rod Assembly, Oil Gauge - Includes Felt.
X-3236		2	Screw, Oil Cooler Housing Plugging - 5/16-18 x 1-1/2".
X-3287A		1	Screw, Oil Cooler Housing to Cylinder - Center - 3/8-16 x 6-1/4".
X-3925		2	Screw, Oil Pan to Crankcase - 3/8-16 x 1".
X-3593		3	Screw, Oil Pan to Crankcase - 3/8-16 x 3/8".
X-2926		13	Screw, Oil Pan to Crankcase - Includes Washer - 3/8-16 x 3/4".
R600L-265		1	Screw, Oil Pressure Relief Valve Adjusting.
X-3252		2	Screw, Oil Pump Body to Bearing Cap - 3/8-16 x 1-3/8".
S4M-101		2	Screw, Oil Pump Cover to Body - 1/4-20 x 7/8".
X-3447		4	Screw, Oil Pump Cover to Body - 1/4-20 x 1-7/8".
R600L-364		1	Shaft, Oil Pump Drive.
R600L-344		1	Sleeve, Oil Cooler By-Pass Valve.
R600L-268		1	Spring, Oil Cooler By-Pass Valve.
R600L-216		1	Spring, Oil Pressure Relief Valve.
X-19003A		2	Stud, Oil Cooler Housing to Cooler - 3/8-16 x 1-3/8".
X-19006		13	Stud, Oil Cooler Housing to Cylinder - 3/8-16 x 1-3/4".
X-19003		3	Stud, Oil Cooler to Cylinder - 3/8-16 x 1-5/8".
X-1918		8	Stud, Oil Pan Hand Hole Cover to Oil Pan - 1/4-20 x 7/8".
R600L-203		1	Stud, Oil Pump Idler Gear.
10EL-227		1	Support, Oil Gauge Rod.
R602L-200		1	Tube, Oil Gauge Rod.
R600L-266		2	Valve - (1) Oil Cooler By-Pass, (1) Oil Pressure Relief.

PARTS LIST

15

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
OIL PAN GROUP (Cont.)			
X-203		9	Washer, Lock - 3/8" - (5) Oil Pan to Crankcase Screw, (2) Oil Pump Body to Bearing Cap Screw, (2) Oil Filler Body to Valve Chamber Cover Stud.
X-201		14	Washer, Lock - 1/4" - (8) Oil Pan Hand Hole Cover to Oil Pan Stud, (6) Oil Pump Cover to Body Screw.
2XX-203		3	Washer, Lock - 3/8" - Oil Cooler to Cylinder Stud.
X-297		15	Washer, Lock - 3/8" - Air Cooler Housing - (2) to Cooler Stud, (13) to Cylinder Stud.
X-14192		2	Washer, Oil Cooler Housing Plugging Screw - Copper.
X-211A		1	Washer, Oil Cooler Housing to Cylinder Screw - 3/8" - Copper.
X-294		2	Washer, Oil Filler Base.
X-14186		2	Washer, Oil Gauge Tube Brace.
MOUNTING AND CRANKING GROUP			
R600B-435		1	Bracket, Trunnion.
31FO-2020		1	Crank Assembly, Starting.
X-18166		2	Nut, Trunnion Bracket to Front Motor Support - 1/2-13 x 7/16".
X-18141		4	Nut - 1"-14 x 3/8" - (2) Tie Rod to Front Motor Support, (2) Tie Rod to Flywheel Housing.
X-18119		8	Nut - 1"-14 x 7/8 - (4) Tie Rod to Front Motor Support, (4) Tie Rod to Flywheel Housing.
P73A-200		2	Rod, Motor Support Tie.
X-3362		4	Screw, Starting Crank Support to Radiator Support - 7/16-14 x 1-1/4".
X-3495		2	Screw, Trunnion Bracket to Front Motor Support - 1/2-13 x 2-1/2".
R602-O-3000		1	Shaft and Support, Starting Crank - Includes:
			R602-O-202 Crankshaft, Starting
			6N1-208 Fastener, Starting Pin.
			20R-202 Jaw, Shaft - Rear.
			J40-101 Lock, Shaft Spring Retainer.
			6PO-106 Pin, Starting Crank.
			MC-111 Pin, Shaft Jaw.
			J40-100 Retainer, Shaft Spring.
			R602-O-201 Spring, Starting Crankshaft.
			R600-O-302 Support, Starting Crank.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
MOUNTING AND CRANKING GROUP (Cont.)			
	P73A-502	1	Support, Front Motor.
	X-296	2	Washer, Lock - 1/2" - Trunnion Bracket to Front Motor Support Screw.
	X-224	4	Washer, Lock - 1" - (2) Tie Rod to Front Motor Support, (2) Tie Rod to Flywheel Housing.
	X-204	4	Washer, Lock - 7/16" - Starting Crank Support to Radiator Support Screw.
MANIFOLD AND MUFFLER GROUP			
	X-12034	1	Bushing, Reducing - Intake Manifold Vacuum Outlet.
	15RE-200	8	Crab, Exhaust & Intake Manifold to Head.
	R600E-207	2	Crab, Exhaust & Intake Manifold to Head (Ends).
	R600E-307	1	Crab, Exhaust & Intake Manifold to Head (Center).
	V800B-209	4	Dowel, Intake Manifold to Cylinder Head - 1/4 x 3/4".
	R602E-300	1	Flange, Exhaust.
	R600E-300	2	Gasket, Exhaust & Intake Manifold to Head.
	R602E-301	1	Gasket, Exhaust Flange to Exhaust Manifold.
	R600E-4162	1	Manifold Assembly, Exhaust & Intake.
	R600E-416	1	Manifold, Exhaust - Center.
	R600E-317	1	Manifold, Exhaust - Front.
	R600E-401	1	Manifold, Exhaust - Rear.
	R600F-500	1	Manifold, Intake.
	155A459	1	Muffler.
	X-18111	13	Nut, Exhaust & Intake Manifold to Head Stud - 1/2-13.
	X-18121	4	Nut, Exhaust Flange to Exhaust Manifold - 7/16-14.
	X-18186	2	Nut, Intake to Exhaust Manifold.
	X-3584	1	Screw, Intake to Exhaust Manifold - 1/2-13 x 2".
	X-19994	9	Stud, Exhaust & Intake Manifold to Head - 1/2-13 x 2-1/2".
	X-4427	2	Stud, Exhaust & Intake Manifold to Head - 1/2-13 x 1-3/4".
	X-19970	2	Stud, Exhaust & Intake Manifold to Head - 1/2-13 x 3-7/8".

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
MANIFOLD AND MUFFLER GROUP (Cont.)			
	X-19060	4	Stud, Exhaust Flange to Exhaust Manifold - 7/16-14 x 2-3/8".
	X-19893	2	Stud, Intake to Exhaust Manifold - 1/2"-13 x 5-1/4".
	X-288	3	Washer, Plain - Intake to Exhaust Manifold Screw and Stud - 1/2".
	6AB-112	16	Washer, Plain - 17/32" - (3) Between Intake & Exhaust Manifolds, (13) Exhaust and Intake Manifold to Head Stud.
	X-1353	4	Washer, Plain - Exhaust Flange to Exhaust Manifold - 1/8" Thick.
FUEL SYSTEM GROUP			
	R542S-300	1	Body, Carburetor Throttle.
	R602F-30C	1	Bracket, Air Cleaner Mounting.
	S749F-216	1	Bracket, Throttle Wire Control - Carburetor.
	F600F-507	1	Carburetor Assembly.
	R602F-323	1	Choke, Automatic - Sesson.
	X-2391	1	Clamp, Hose - Hose to Air Cleaner.
	X-2366	1	Clamp, Hose - Hose to Carburetor.
	F600F-404	1	Cleaner, Air.
	R602F-207	1	Clip, Fuel Line to Flywheel Housing.
	F226F-237	1	Clip, Throttle Tube to Bracket - Carburetor.
	X-5057A	2	Connector, Carburetor Inlet - 1/8" Pipe x 5/16" Tube.
	X-5073A	1	Elbow, Fuel Pump Inlet - 3/8" Tube (Brass Sleeve).
	X-5059A	1	Elbow, Fuel Pump Outlet (90°) 1/4" Pipe x 5/16" Tube.
	1/2V-309	1	Filter, Fuel.
	R542F-200	3	Gasket - (1) Carburetor Throttle Body to Intake Manifold, (1) Carburetor Spacer to Throttle Body, (1) Carburetor to Spacer.
	R600V-203	1	Gasket, Fuel Pump to Cylinder.
	R602F-303	1	Hose, Air Cleaner to Carburetor.
	X-12218	2	Joint, Ball - Governor Control Rod - (1) Throttle Body Lever - (1) Governor.

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
FUEL SYSTEM GROUP (Cont.)			
R600K-286		1	Lever, Automatic Choke.
X-5654		1	Lever, Carburetor Idling Control Lever Swivel.
X-1800C		2	Nut, Automatic Choke to Manifold Stud - 1/4-20.
X-18130		1	Nut, Carburetor Throttle Control Clip to Bracket - #8-32.
X-18137		3	Nut, Carburetor Control Rod to Ball Joint Lock - 1/4-28.
X-18096		2	Nut, Carburetor to Intake Manifold Mounting Stud - 7/16-20.
X-1802G		2	Nut, Fuel Pump to Cylinder Stud - 3/8-16.
X-605		2	Pin, Cotter - 1/16 x 3/8" - Automatic Choke to Carburetor Rod.
F600F-412		1	Pump, Fuel (Hand Primer).
F600F-285		1	Rod, Automatic Choke to Carburetor.
R542S-200		1	Rod, Carburetor Throttle Body to Governor Control.
R427F-208		1	Saddle, Air Cleaner Bracket.
X-3488		4	Screw, Air Cleaner Bracket to Cylinder Block - 1/2-13 x 1".
X-3033B		1	Screw, Carburetor Idling Control Lever Swivel - #8-26 x 1-1/2".
X-3849		1	Screw, Carburetor Throttle Control Clip to Bracket - #8-32.
R542S-201		1	Spacer, Carburetor Throttle Body to Carburetor - 5/16" Thick.
X-1900		2	Stud, Automatic Choke to Manifold - 1/4-20 x 3/4".
X-4162		2	Stud, Carburetor to Intake Manifold Mounting - 7/16-14 x 4-7/8".
X-4228		2	Stud, Fuel Pump to Cylinder - 3/8-16 x 1-7/8".
R602F-407		1	Tube, Fuel Pump to Carburetor Fuel - 5/16".
X-296		4	Washer, Lock - 1/2" - Air Cleaner Bracket to Cylinder Block.
X-201		4	Washer, Lock - 1/4" - (2) Automatic Choke to Manifold, (1) Ball Joint to Governor Lever.
			(1) Ball Joint to Throttle Body Lever.
X-297B		2	Washer, Lock - 7/16" - Carburetor to Manifold Mounting Stud.
X-230		1	Washer, Lock - Carburetor Throttle Control Clip to Bracket Screw.
X-203		2	Washer, Lock - 3/8" - Fuel Pump to Cylinder Stud.
UB-110		4	Washer, Plain - Air Cleaner Saddle to Air Cleaner Bracket Screw.
X-1373		2	Washer, Plain - Automatic Choke to Manifold Stud.
X-14166		3	Washer, Plain - 7/32 x 13/32 x 1/32 - (2) Automatic Choke to Carburetor Rod - one each end, (1) Carburetor Lever to Swivel.

PARTS LIST

19

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
			GOVERNOR GROUP
	F140M-232	1	Gasket, Governor Mounting.
	R600H-330	1	Gear, Governor Drive (Driver).
	R542S-5000	1	Governor Assembly.
	X-1802G	2	Nut, Governor to Gear Cover Stud - 3/8-16 x 21/64.
	B600M-204	1	Nut, Lock - Governor to Gear Cover - Upper.
	X-4221	2	Stud, Governor to Gear Cover - 3/8-16 x 2".
	X-203	2	Washer, Lock - 3/8" - Governor to Gear Cover Stud.
			WATER PUMP AND FAN GROUP
	R602K-408	1	Blades, Fan (4 Blades - 24" Pusher Type).
	R602K-208	1	Belt Set (Fan, Water Pump & Generator Drive) Matched.
	R600K-505	1	Body, Water pump.
	R602K-242	1	Gasket, Water Pump Body to Cylinder.
	R602K-243	1	Gasket, Water Pump Body to Head.
	3XX-545	2	Key, Fan Drive Pulley to Crankshaft.
	X-18068	1	Nut, Fan Pulley to Water Pump Shaft - 5/8-18.
	X-1803H	2	Nut, Water Pump Body to Cylinder Stud - 7/16-14.
	X-18311	3	Nut, Water Pump Body to Head Stud - Brass - 7/16-14.
	X-619	1	Pin, Cotter - Fan Pulley to Water Pump Shaft.
	R600K-432	1	Pulley, Fan.
	R600K-439	1	Pulley, Fan Drive (On Crankshaft).
	R600K-5052	1	Pump Assembly, Water - Complete.
	X-102	4	Plug, Pipe - 3/8" - Water Pump Body - Extruded Head.
	R6572T-125	1	Repair Kit, Water Pump.
	X-3896	6	Screw, Fan Blades to Hub - Includes Lockwasher.
	R600K-201	1	Seal, Dust - Fan Drive Pulley.
	X-4310	4	Stud, Water Pump Body - 7/16-14 x 2 - (2) to Cylinder, (2) to Head.
	X-4353	1	Stud, Water Pump Body to Head - 7/16-14 x 1-7/8".

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
WATER PUMP AND FAN GROUP (Cont.)			
	R600K-4201	1	Support, Water Pump Drive Shaft - Includes Bushing.
	X-297B	3	Washer, Lock - 7/16" - Water Pump Body to Head Stud.
	X-204	2	Washer, Lock - 7/16" - Water Pump Body to Cylinder Stud.
	X-298	1	Washer, Lock - 5/8" - Fan Pulley to Water Pump Shaft.
	X-14160	1	Washer, Plain - 15/32" - Water Pump Body to Cylinder.
	B5B-101	1	Washer, Plain - 41/64" - Fan Pulley to Water Pump Shaft.
RADIATOR GROUP			
	R600K-450	2	Bracket, Radiator Support.
	X-2356	6	Clamp, Radiator Hose - (4) Water Pump to Water Pump Inlet Tube, (2) Cylinder Water Outlet to Radiator Tube Hose.
	X-1005	1	Cock, Radiator Drain.
	R602K-301	1	Elbow, Radiator Inlet.
	R602K-206	1	Gasket, Radiator Inlet Elbow.
	130D363	1	Guard, Fan.
	R602K-205	1	Hose, Cylinder Water Outlet to Radiator Inlet - 2-1/4" I.D. x 2-5/8" O.D. x 10" Long.
	182K-208	1	Hose, Radiator Outlet to Water Pump Inlet Tube - 2-1/4" I.D. x 2-5/8" O.D.
	E600V-207	1	Hose, Water Pump Inlet Tube to Water Pump - 2-1/4" I.D. x 2-5/8" O.D. x 2-5/8".
	P73A-309	2	Liner, Radiator Support.
	X-18166	14	Nut - 1/2 x 7/16 - (2) Radiator to Support, (8) Radiator Support Bracket to Front Motor Support, (4) Radiator Support to Bracket.
	X-1803H	2	Nut - 7/16-14 - Radiator to Inlet Elbow.
	X-1802G	1	Nut - 3/8-16 - Upper Brace Rod to Radiator Ledge.
	PR602-5100	1	Radiator Assembly.
	R602K-260	1	Rod, Radiator Brace - Lower.
	R602K-259	1	Rod, Radiator Brace - Upper.
	R600A-244	1	Screw, Special Head - Cylinder Head to Crankcase Right Rear - 1/2-13 x 7".
	X-3973	1	Screw, Lower Brace Rod (to Special Head Screw) 1/2-13 x 7/8".

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
RADIATOR GROUP (Cont.)			
	X-3941	1	Screw, Upper Brace Rod to Radiator Ledge - 3/8-16 x 7/8".
	X-3464	8	Screw, Radiator Support Bracket to Front Motor Support - 1/2-13 x 2-1/8".
	X-3545	4	Screw, Radiator Support to Bracket - 1/2-13 x 1-7/8".
	R602K-215	As Req.	Shim, Radiator Support Bracket to Radiator Support.
	R602K-400	1	Support, Radiator.
	R602K-401	1	Tube, Radiator to Water Inlet.
	P73A-225	1	Turnbuckle - Between Upper and Lower Brace Rods.
	X-296	15	Washer, Lock - 1/2 x 1/8 Thick - (2) Radiator to Support, (8) Radiator Support Bracket to Front Motor Support, (4) Radiator Support to Bracket, (1) Lower Brace Rod to Special Head Screw.
	X-204	2	Washer, Lock - 7/16" - Radiator to Inlet Elbow.
	X-203	1	Washer, Lock - 3/8" - Upper Brace Rod to Radiator Ledge.
IGNITION GROUP			
	R600M-4290	1	Adapter & Bushing, Distributor Drive.
	R600M-244	1	Arm, Distributor Clamp.
	R600M-357	1	Bracket, Ignition Coll.
	R600M-275	1	Bracket, Wire Insulator (on Rear Coll Bracket Stud).
	416A341	2	Cable, Battery - 28" Long.
	416A4	1	Cable, Battery Jumper - 6-3/4" Long.
	22RM-317	1	Coll, Ignition.
	25AM-209	1	Dial, Distributor Clamp Arm.
	R602M-403	1	Distributor Assembly.
	R600S-283	1	Gasket, Distributor Adapter to Cylinder.
	R600H-225	1	Gear, Distributor Drive.
	HW204-19	2	Lead, High Tension - 19" Long (Distributor to #1 and #6 Cylinder).
	HW204-15	4	Lead, High Tension - 15" Long (Distributor to #2, 3, 4 and 5 Cylinder).

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
IGNITION GROUP (Cont.)			
	HW226-19	1	Lead, High Tension - 19" Long (Distributor to Ignition Coil).
	LW203-181/4	1	Lead, Low Tension - (Distributor to Coil).
	X-1802G	2	Nut, Ignition Coil Bracket to Water Inlet Head - 3/8-16.
	X-1796	1	Pin, Distributor Drive Gear to Shaft.
	SP201-5	6	Plug, Spark.
	X-3119	1	Screw, Distributor Clamp Arm - 1/4-20 x 3/4".
	X-3295	2	Screw, Distributor Housing to Cylinder - 3/8-10 x 1-1/8".
	X-3182	2	Screw, Ignition Coil to Bracket - 5/16-18 x 3/4".
	R600M-2410	1	Shaft Assembly, Distributor Drive - Includes Shaft, Coupling & Pin.
	X-19002	2	Stud, Ignition Coil Bracket to Water Inlet Head - 3/8-16 x 1-1/4".
	X-201	1	Washer, Lock - 1/4" - Distributor Clamp Arm Screw.
	X-203	4	Washer, Lock - 3/8" - (2) Distributor Housing to Cylinder Screw, (2) Ignition Coil Bracket to Water Inlet Head Stud.
	X-202	2	Washer, Lock - 5/16" - Ignition Coil to Bracket Screw.
	R600M-228	1	Washer, Thrust - Distributor Drive Gear.
BATTERY CHARGE GENERATOR AND STARTING MOTOR GROUP			
	F218M-320	1	Baffle, Charge Generator Fan.
	R602M-363	1	Bracket, Charge Generator.
	F400M-217	1	Clip, Charge Generator Adjusting Strap.
	F218M-319	1	Fan, Charge Generator.
	R600M-513	1	Generator, Battery Charge.
	X-1802G	3	Nut, Starter to Flywheel Housing Stud - 3/8-16.
	X-1803H	2	Nut, Charge Generator to Bracket Screw.
	X-18166	4	Nut, Charge Generator Bracket to Crankcase Stud - 1/2-13.
	R600M-387	1	Pulley, Charge Generator.
	X-3464	1	Screw - 1/2-13 x 2-1/8" - Charge Generator Adjusting Strap thru Gear Cover to Front End Plate.

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
BATTERY CHARGE GENERATOR AND STARTING MOTOR GROUP (Cont.)			
X-3408		2	Screw - 7/16-14 x 1-3/8" - Charge Generator to Bracket.
X-3232		1	Screw - 5/16-16 x 1-1/4" - Charge Generator to Adjusting Strap.
X-14383		1	Spacer, Charge Generator Adjusting Strap to Gear Cover.
X91-236		1	Spacer, Charge Generator to Adjusting Strap.
R602M-503		1	Strap, Charge Generator Adjusting.
R602M-240		1	Stud, Charge Generator to Crankcase - 1/2-13 x 1-15/16".
X-3466A		4	Stud, Starter to Flywheel Housing - 3/8-16 x 1-11/16".
X-4200		3	Washer, Lock - 1/2" - (1) Charge Generator Adjusting Strap thru Gear Cover to Front End
X-296		5	Plate Screw, (4) Charge Generator Bracket to Crankcase Stud.
X-204		2	Washer, Lock - 7/16" - Charge Generator to Bracket Screw.
X-202B		1	Washer, Lock - 5/16" - Charge Generator to Adjusting Strap Screw.
X-203		3	Washer, Lock - 3/8" - Starter to Flywheel Housing Stud.
ANTI-DIESELING DEVICE GROUP			
145B122		1	Bracket, Solenoid Mounting.
150A69		1	Joint, Ball (Solenoid Link to Throttle Spring Link).
145A133		1	Link, Solenoid.
145A118		1	Link, Throttle Spring.
307B277		1	Solenoid & Lead Assembly.
150A302		1	Spacer, (Between Ball Joint and Throttle Spring Link).
145A119		1	Spring, Throttle.
150A146		1	Stud, Governor Adjusting.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
DAY TANK GROUP			
	159A121	1	Band, Tank Mounting.
	159A419	1	Bracket, Tank Mounting.
	415A55	1	Bracket, Vent Line Cap.
	159-41	1	Cap, Vent Line.
	504A39	1	Cock, Fuel Shut-off - With Strainer.
	502-116	1	Connector, Vent Line Compression - With Nut and Sleeve (1/8" Pipe Thread).
	502-24	2	Elbow, Compression - (1) Tank to Vent, (1) Tank Inlet.
	149A597	1	Line, Tank to Carburetor - 32-5/8" Long.
	149B598	1	Line, Tank to Fuel pump - 41-1/2" Long.
	159B294	1	Tank, Reservoir "Day" (1 quart).
	159A345	1	Tubing, Copper - Vent Line (12 Feet x 5/16" O.D.).
CONTROL GROUP (AC OUTPUT PANEL) UPPER			
	302-14	1	Ammeter, AC - 120/208 Volt, 60 cycle Models and 120/240 Volt, 60 cycle Models.
	302-126	1	Ammeter, AC - 460 Volt, 60 Cycle Models and 277/480 Volt, 60 Cycle Models.
	302-12	1	Ammeter, AC - 220/380 Volt, 60 Cycle Models.
	302-11	1	Ammeter, AC - 575 Volt, 60 Cycle Models.
	302-208	1	Ammeter, AC - 120/208 Volt, 50 Cycle Models.
	302-13	1	Ammeter, AC - 120/240 Volt, 50 Cycle Models.
	302-11	1	Ammeter, AC - 460 Volt, 50 Cycle Models.
	302-126	1	Ammeter, AC - 220/380 Volt, 50 Cycle Models.
	302-10	1	Ammeter, AC - 575 Volt, 50 Cycle Models.
	305C181	1	Base Assembly, Voltage Regulator (Includes Base, Terminal Strip, Resistors and Hardware).
	332A333	1	Block, Terminal - 2 Place - 2-3/32" x 1-5/16".
	332A391	1	Block, Terminal - 4 Place - 3-7/32" x 1-1/16".
	332A503	1	Block, Terminal - 8 Place - 5-15/32" x 1-1/16".
	301D1106	1	Box Only, Control.

PARTS LIST

25

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CONTROL GROUP (AC OUTPUT PANEL) UPPER (Cont.)			
301D1209		1	Box, Output Terminal.
301B1124		1	Bracket, Control Box Mounting - Left Hand.
301B1125		1	Bracket, Control Box Mounting - Right Hand.
191A115		1	Bracket, Voltage Regulator Mounting.
320B97		1	Breaker, Circuit.
302A235		3	Clamp, Current Transformer - Upper Half.
302A236		3	Clamp, Current Transformer - Lower Half.
312A35		1	Condenser, Voltage Regulator.
301B1190		1	Cover, Output Terminal Box.
402-78		4	Dampners, Vibration (Rubber) Between Control Box & Mounting Bracket.
303-32		2	Knob, Rheostat - (1) Voltage Regulator Rheostat, (1) Field Rheostat.
302-213		1	Meter, Frequency - 60 Cycle Models.
302-213		1	Meter, Frequency - 120/208 Volt, 50 Cycle Models.
302-234		1	Meter, Frequency - All 50 Cycle Models except 120/208 Volt.
302-68		1	Meter, Running Time - 60 Cycle Models.
302-68		1	Meter, Running Time - 120/208 Volt, 50 Cycle Models.
302-102		1	Meter, Running Time - All 50 Cycle Models except 120/208 Volt.
302-157		1	Multiplier, Meter (Resistor) 460 Volt, 220/380 Volt and 277/480 Volt Models.
302-163		1	Multiplier, Meter (Resistor) 575 Volt Models.
301C1410		1	Panel, Meter (Upper) 120/208 Volt Models.
301C1465		1	Panel, Meter (Upper) 120/240 Volt Models.
301C1466		1	Panel, Meter (Upper) 460 Volt, 220/380 Volt, 575 Volt, and 277/480 Volt Models.
305P117		1	Regulator, Voltage (Plug In Unit).
304-125		1	Resistor, Frequency Meter - 120/240 Volt, 460 Volt, and 220/380 Volt Models.
304-402		1	Resistor, Frequency Meter - 575 Volt Models.
304-305		1	Resistor, Frequency Meter - 277/480 Volt Models.
304A74		1	Resistor, Global Field Discharge.
304-99		1	Resistor, Running Time Meter - 120/240 Volt or 220/380 Volt Models.
304-305		1	Resistor, Running Time Meter - 460 Volt Models.
304-134		1	Resistor, Running Time Meter - 575 Volt Models.
304-125		1	Resistor, Running Time Meter - 277/480 Volt Models.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CONTROL GROUP (AC OUTPUT PANEL) UPPER (Cont.)			
304-72		1	Resistor, Voltage Regulator to Terminal Block (Adjustable) 750 Ohm - 50 Watt.
303-65		1	Rheostat, Voltage Regulator.
303-83		1	Rheostat & Switch, Field.
337A44		1	Strap, Ground.
332A499		1	Strip, 2 Place Terminal Block Marker (Marked 23, 24).
332A524		1	Strip, 4 Place Terminal Block Marker (Marked F2, AF, F1, A1).
332A525		1	Strip, 8 Place Terminal Block Marker (Marked 15, 16, 17, 18, 19, 20, 21, 22).
308P131		1	Switch, Rheostat.
308-22		1	Switch, Voltage and Current Selector.
302B107		3	Transformer, Current - 120/208 Volt and 120/240 Volt - 60 Cycle Models.
302B243		3	Transformer, Current - 460 Volt and 277/480 Volt - 60 Cycle Models.
302-242		3	Transformer, Current - 220/380 Volt - 60 Cycle Models.
302B78		3	Transformer, Current - 575 Volt - 60 Cycle Models.
302B228		3	Transformer, Current - 120/208 Volt - 50 Cycle Models.
302B106		3	Transformer, Current - 120/240 Volt - 50 Cycle Models.
302B78		3	Transformer, Current - 460 Volt - 50 Cycle Models.
302B243		3	Transformer, Current - 220/380 Volt - 50 Cycle Models.
302B244		3	Transformer, Current - 575 Volt - 50 Cycle Models.
315B20		1	Transformer, Potential (460-230 Volt) 460 Volt and 277/480 Volt Models.
315B21		1	Transformer, Potential (380-220 Volt) 220/380 Volt Models.
315B23		1	Transformer, Potential (575-230 Volt) 575 Volt Models.
302-41		1	Voltmeter, AC - 120/208 Volt and 120/240 Volt Models.
302-42		1	Voltmeter, AC - 460 Volt, 220/380 Volt and 277/480 Volt Models.
302-150		1	Voltmeter, AC - 575 Volt Models.
CONTROL GROUP (ENGINE PANEL) LOWER			
302A61		1	Ammeter, Charge.
332A406		1	Block, Terminal - 3 Place - 2-11/16" x 1-1/16" - Time Delay Relay.
332A391		1	Block, Terminal - 4 Place - 3-7/32" x 1-1/16"

PARTS LIST

27

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
CONTROL GROUP (ENGINE PANEL) LOWER (Cont.)			
332A503		1	Block, Terminal - 8 Place - 5-15/32" x 1-1/16".
301A974		1	Bracket, Start-Stop Switch Mounting.
308-91		1	Button, Emergency Stop Re-Set.
193-44		2	Clamp, Gauge - (1) Oil Pressure, (1) Water Temperature.
193B88		1	Gauge Assembly, Oil Pressure (Includes Gauge, Clamp, Separator & Hardware).
193B36		1	Gauge Assembly, Water Temperature (Includes Gauge, Clamp, Separator & Hardware).
301C1152		1	Panel & Hinge, Control (Lower).
307B4		1	Relay, Anti-Dieseling Solenoid Start.
307B299		1	Relay, Emergency Stop.
307B81		1	Relay, Pilot.
307B52		1	Relay, Start-Disconnect.
307B81		1	Relay, Start Ignition.
307B4		1	Relay, Stop.
307-325		1	Relay, Time Delay.
304-45		1	Resistor, Fixed - 4 Ohm - 50 Watt (Connects to Anti-Dieseling Circuit).
304-32		1	Resistor, Fixed - 15 Ohm - 10 Watt (Off Stop Relay).
193-41		2	Resistor, Fixed - (1) Water Temperature Gauge, (1) Oil Pressure Gauge.
193-45		2	Separator, Gauge Terminal - (1) Water Temperature, (1) Oil Pressure.
332A526		1	Strip, Marker - 3 Place Terminal Block - Time Delay Relay - Marked 12, 13, 14.
332A447		1	Strip, Marker - 4 Place Terminal Block - Marked B+, 1, 2, 3.
332A510		1	Strip, Marker - 8 Place Terminal Block - Marked 4, 5, 6, 7, 8, 9, 10, 11.
308-6		1	Switch, Selector - Hand Crank & Remote Start.
308-90		1	Switch, Start-Stop.

GENERATOR GROUP

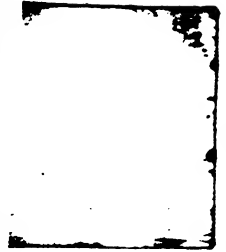
231D70	1	Adapter, Generator to Engine.
★	1	Armature Assembly, Exciter.

★ - Order by description giving Model, Spec and Serial Number from ONAN Nameplate.

PARTS LIST

REF. NO.	PART NO.	QUANT. USED	DESCRIPTION
			GENERATOR GROUP (Cont.)
232C1221		1	Band, Stator - Alternator.
510P63		1	Bearing, Rotor Ball - Alternator.
211E96		1	Bell, Alternator End (Connects Alternator & Exciter).
205R55		1	Blower, Alternator.
214A44		4	Brush, Commutator - Exciter Brush Rig.
214A46		4	Brush, Slip Ring - Alternator Brush Rig.
212A1142		4	Clamp, Brush Rig - Exciter.
★		1	Coil Assembly, Exciter Field - Set of 4 Coils wired together.
312A17		1	Condenser - 0.5 Mfd. - Alternator.
312A15		1	Condenser - 0.1 Mfd. - Exciter.
211C92		1	Cover, Exciter End.
210D215		1	Frame Only, Exciter.
338B138		1	Harness Assembly, Generator Control Wire.
212C1141		1	Holder, Brush Rig - Exciter.
232A1186		1	Holder, Rotor Bearing - Rubber - Alternator.
515-130		1	Key, Exciter Armature to Rotor Shaft.
232B1254		2	Plate, Alternator End Bell - Upper Sides of End Bell.
232B1253		3	Plate & Screen, Alternator End Bell Cover - Lower Sides & Bottom of End Bell.
221A91		4	Poleshoe, Exciter.
212C194		1	Rig Assembly, Brush - Alternator (Includes Brushes, Springs & Hardware).
212C197		1	Rotor Assembly, Brush - Exciter (Includes Brushes, Springs & Hardware).
★		1	Screw, Armature Mounting - Exciter.
800-67		1	Scroll, Alternator Air.
232C1271		1	Spring, Brush - Constant Pressure Type - (4) Alternator, (4) Exciter.
212B1105		8	Spring, Rotor Bearing Holder - Alternator.
232A1187		1	Stator Assembly, Wound - Alternator.
★		1	Washer, Armature Centering - Exciter.
232A1205		1	

★ - Order by description giving Model, Spec and Serial Number from ONAN Nameplate.





Onan Corporation
1400 73rd Avenue N.E.
Minneapolis, MN 55432
1-800-888-ONAN
612-574-5000 International Use
Telex: 275477
Fax: 612-574-8087

Onan is a registered trademark of Onan Corporation